

and caused moderately heavy rains from Valparaíso to Chiloe. From the 6th to the 14th high pressure prevailed over the southern Chilean Provinces and it was accompanied by fair weather over the entire central belt.

In Argentina and Paraguay scattered rains occurred again on the 11th and 12th.

On the 15th an important atmospheric depression appeared from the west and began to influence conditions in southern Chile; on the 16th the center of this area with a minimum pressure of 29.65 inches (753 mm.) was situated off Isla Mocha; on the 17th it was found more to the north, but the convergent winds, which were abnormal by excess [that is, of velocity too great in proportion to the pressure gradient],¹ caused a filling up according to the law of Guilbert.

Between the 15th and the 20th there were several depressions moving from west to east and causing continued unsettled weather in the extreme southern part of the continent.

Some snow fell in Magallanes on the 22d; this was followed by a heavier fall on the 25th accompanied by a cold wave.

Another period of atmospheric disturbance in the southern region began on the 26th. On the 28th a depression extended from the Juan Fernandez Islands to Isla Mocha and caused continued rains from Concepcion southward. On the 30th an extensive depression dominated conditions over the entire southern part of the continent. At Cabo Raper the pressure fell to about 28.94 inches (735 mm.) and at Temuco and on the island of Huafo the north wind attained a velocity of 63 miles per hour. In all southern Chile the rainfall was very heavy.

May.—In all of the southern region of the continent the first half of the month was rainy, but the remainder was relatively dry with periods of severe cold. The lowest temperatures were observed in the region of Chos Malai, Las Lajas, and Bariloche (Chubut) in Argentina and Lonquimay in Chile, stations which lie within the

"cold pole" of the continent of South America.² In this region minimum temperatures frequently fluctuated between 23° and 14° and even ranged down to 9°.

During the passage of a depression across the southern region from the 1st to the 3d rain fell over southern and central Chile northward to the province of Aconcagua (north of Santiago). Scattered precipitation occurred in Rio Negro on the 1st and 1 inch of rain fell at Buenos Aires on the 3d.

The rise in pressure on the 4th was accompanied by a general fall in temperature in southern Chile.

From the 5th to the 7th a depression was approaching off the coast of central Chile; on the 8th it began to affect conditions on the continent and heavy rains fell between Coquimbo and Chiloe. At the same time another depression between Buenos Aires and Bahia Blanca was accompanied by heavy rains and electrical storms.

On the 9th there was a second rise in pressure over southern Chile and by the 10th this resulted in an important anticyclonic area with maximum pressure above 30.32 inches (770 mm.) in Chiloe. This center with certain changes persisted until the 19th and the period of its duration was characterized by severe cold waves in the southern part of the continent.

The depression which crossed the southern region on the 20th was accompanied by rains between Malleco and Magallanes on the 21st.

On the 22d pressure rose again in southern Chile, forming an extensive center with maximum pressure 30.39 inches (772 mm.) between Isla Huafo and Cipolleti, Argentina, and bringing another severe cold wave.

During the passage of a depression on the 23d the pressure fell to 28.82 inches (732 mm.) at Punta Arenas, and on the following day there was heavy snowfall in the region of Magallanes.

The southern anticyclonic center was reestablished on the 25th and the pressure was above 30.32 inches (770 mm.) at Valdivia; this center with some changes persisted until the close of the month and brought another period of severe cold.

¹ See Fassig, O. L.: Guilbert's Rules for Weather Prediction, Mo. Weather Rev., May, 1907, 35: 210, and on pp. 211-212, the translation by Fassig of Guilbert's "Principles of Forecasting the Weather."

² These stations lie between latitudes 37° and 41° S., and the elevations above sea-level range from 2,340 to 3,180 feet.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Bjerknes, J., & Solberg, H.

Les conditions météorologiques de formation de la pluie. L'évolution des cyclones et la circulation atmosphérique d'après la théorie du front polaire. Paris. 1923. 102 p. illus. 31 cm. (Mém. de l'Office nat. mét. de France. 1re année. no. 6.)

Carrier, W. H., & Lindsay, Daniel C.

Temperatures of evaporation of water into air. An experimental determination of the laws governing the deviation of the actual temperature of evaporation from the theoretical. 43 p. figs. 23 cm. (Amer. soc. mech. engin., N. Y. Paper to be presented at annual meeting of the society, Dec. 1 to 4, 1924.)

Collins, W. D.

Temperature of water available for industrial use in the United States. Washington. 1925. ii, p. 97-104. plates. 23 cm. (U. S. Geol. surv. Water-supply paper 520-F.)

Covert, Roy N.

Meteorological instruments and apparatus employed by the United States weather bureau. p. 299-425. illus. 24 cm. (Journ. Optic. soc. Amer. & Rev. sci. inst., v. 10, no. 3, March, 1925.)

Elsner, G. v.

Die Verteilung des Luftdrucks über Europa und dem Nordatlantischen Ozean dargestellt auf Grund zwanzigjähriger Pentadenmittel (1890-1909). Berlin. 1925. 40 p. plates. 33 cm. (Veröffent. Preuss. met. Inst. Nr. 326. Abhandl. Bd. 7, Nr. 7.)

Flinn, Frederick B.

Some effects of high environmental temperatures on the organism. p. 868-896. fig. 23½ cm. [U. S. Pub. health serv. Pub. health rep., v. 40, no. 18, May 1, 1925.]

Follansbee, Robert, & Hodges, Paul V.

Some floods in the Rocky mountain region. Washington. 1925. iv, p. 105-129. figs. plate. 23½ cm. (U. S. Geol. survey. Water-supply paper 520-G.)

Gates, Frank C.

Meteorological data, Douglas Lake, Michigan. p. 475-489. 23½ cm. [Repr.: Papers Mich. acad. sci., arts and letters, v. 4, 1924.]

Geography supply bureau.

Geography lantern slides . . . Meteorology and climatology. Ithaca. n. d. p. 18-24. 25½ cm.

Great Britain. Meteorological office.

Hygrometric tables for the computation of relative humidity, vapor pressure, and dew point from readings of dry and wet bulb thermometers exposed in Stevenson screens. London. 1924. 25 p. plate. 24½ cm. (M. O. 265.)

Particulars of meteorological reports issued by wireless telegraphy in Great Britain and the countries of Europe and North Africa. 1925. London. 1925. vi, 134 p. 24½ cm. (M. O. 252 (3d ed.)). 3d ed.

Harzer, Paul.

Berechnung der Ablenkungen der Lichtstrahlen in der Atmosphäre der Erde auf rein meteorologisch-physikalischer Grundlage. Kiel. 1922-1924. 89 p. 29 cm. (Pub. Sternwarte in Kiel. 13.)

Gebrauchstabellen zur Berechnung der Ablenkungen der Lichtstrahlen in der Atmosphäre der Erde für die Beobachtungen am grossen Kieler Meridian-Kreise. Kiel. 1924. unp. 29 cm. (Pub. Sternwarte in Kiel. 14.)

Jermin, Frank.

Fluctuations in lake levels. p. 28-37. diagrs. 23 cm. [Great Lakes prot. assoc. Annual report, 1923.]

Knoch, K.

Zur Methodik klimatologischer Forschung. Berlin. 1925. p. 49-59. 25 cm. (Veröffent. Preuss. met. Inst. Nr. 327.) (Sonderab. Bericht über die Tätigkeit Preuss. met. Inst. 1924.)

Linke, Franz.

Die Abhängigkeit der Luftdichte von der Meereshöhe (pyknometrische Höhenformeln). [Frankfurt a. M. 1924.] 8 p. 28 cm.

Mariolopoulos, E. G.

Étude sur le climat de la Grèce. Précipitation. Stabilité du climat depuis les temps historiques. Paris. 1925. 66 p. charts. 25½ cm.

Maurer, J., & Lüttsch, O.

Einige Ergebnisse über die Verdunstungsgrösse freier Wasserflächen im schweizerischen Hochgebirge. Zürich. 1924. 23 p. illus. plate. 31 cm. (Annalen Schweiz. met. Zentralanst. Jahrg. 60, 1923.)

Meteorology in education.

Report of a conference held at the Birkbeck college on January 3d, 1924, between the Royal meteorological society, the Geographical association, and the Science masters' association. London. 1924. 24 p. figs. 25½ cm.

Meyer, Rudolf.

Haloerscheinungen. Theoretische Beiträge zur meteorologischen Optik. 79 p. fig. 22½ cm. [Abhandlungen des Herder-Institutes zu Riga. 1. Bd. Nr. 5.]

Norlinth, Sven.

Översikt över Sveriges vattenkraft. Stockholm. 1924. viii, 40 p. maps (fold.) 32½ cm. (Medd. Statens met.-hydrog. anstalt. Bd. I, n:o 5.)

Odell, L. M.

Weather chart exercises (British Isles and west of Europe.) New and rev. ed. London. 1924. 32 p. charts. 25 cm.

Phillips, Percy.

Discharges and levels of the Nile and rains of the Nile basin in 1919. Cairo. 1924. vi, 84 p. plates (fold.) 27½ cm. (Min. pub. works, Egypt. Phys. dept. paper no. 11.)

Physical society of London & Royal meteorological society.

Discussion on ionization in the atmosphere and its influence on the propagation of wireless signals; held November 28, 1924, at the Imperial college of science, South Kensington, S. W., London. n. d. 50 p. figs. plates. 26 cm.

Réthly, Antal.

Az elmúlt év időjárásai katasztrófái hazánkban. [Weather catastrophes in the country during the past year.] Budapest. 1925. p. 435-448. illus. plate. 23 cm.

Rosby, Carl-Gustaf.

Meteorologiska resultat av en sommarsegelats runt de Brittiska Öarna. (Meteorological results of a summer-cruise round the British Isles.) Stockholm. 1925. 16 p. illus. 31½ cm.

Talman, Charles Fitzhugh.

Our weather; what makes it and how to watch it. A popular book on meteorology—the science of the atmosphere. New York. n. d. 384 p. illus. plates. 20½ cm. [Reprint of: Meteorology, the science of the atmosphere. N. Y. 1922.]

Visher, Stephen S.

Some effects of tropical cyclones. p. 139-150. illus. 26 cm. [Journ. geogr., v. 24, no. 4, Apr., 1925.]

Wallis, A. H.

Sunspots and temperatures. 1916. Showing comparisons between Wolfer daily relative numbers and the mean daily maximum temperature at sixteen inland African stations. Kimberley. 1924. 16 p. 19 cm.

RECENT PAPERS BEARING ON METEOROLOGY

The following titles have been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau.

Aéronautique. Paris. 7 année. Mai 1925.

Lindholm, F. Exploration de la haute atmosphère par avion. Résultats d'une campagne de sondages aérologiques en Suède. Application aux records d'altitude. p. 161-164.

American meteorological society. Bulletin. Worcester, Mass. v. 6. April, 1925.

B[rooks], C[hables] F., & T[ripp], F. V. Some early history of the development of our knowledge concerning extratropical cyclones. p. 57-59.

Kadel, Benjamin C. The cooperative observer's thermometers. p. 61-63.

Stice, K. S. The rainfall distribution in a recent cyclone over the eastern United States. p. 59-61.

Woolard, Edgar W. Theories of the extratropical traveling cyclone. p. 49-57.

Annalen der Hydrographie und maritimen Meteorologie. Berlin. 53. Jahrgang. März 1925.

Georgii, Walter. Gesetzmässigkeiten des Wetters. p. 81-85.

Köppen, W. Marine Sedimente als Zeugen für Wasser temperatur und Regenmenge. p. 106-107.

France. Académie des sciences. Comptes rendus. Paris. t. 180. 5 janvier 1925.

Esclanong, Ernest. Sur les zones de silence par réflexion sur des surfaces de discontinuité atmosphérique. p. 1412-1415.

Hemel en dampkring. Den Haag. 23. jaargang. Mei 1925.

Visser, S. W. Halo's in 1924 in Nederlandsch Indië waargenomen. p. 113-130.

Hydrographic review. Monaco. v. 1. March, 1923.

Phaff, J. M. Visibility of lights. p. 108-118.

India. Meteorological department. Memoirs. Calcutta. v. 24. 1924.

Walker, Gilbert T. Correlation in seasonal variations of weather, IX. A further study of world weather. (pt. 9.)

Walker, Gilbert T. Correlation in seasonal variations of weather, X. Applications to seasonal forecasting in India. (pt. 10.)

Marine observer. London. v. 2. July, 1925.

Clarke, G. Auborne. What the clouds told us in "Olympia" on July 9th and 10th, 1924. p. 116-118.

Harwood, W. A. Scirocco. p. 114-115.

Keeton, H. Sea and swell. p. 103-112.

Meteorologia pratica. Montecassino. Anno 6. Gennaio-febbraio 1925.

Ferrario, Artemio. Il cabotaggio a vela e le condizioni meteorologiche del Mediterraneo. p. 36-38.

Martini, S. Il freddo e le piante. p. 30-33.

Oddone, Emilio. Per la spiegazione del periodo diurno delle precipitazioni. p. 3-6.

Paleotti, G. Guerrieri. L'influenza delle variazioni meteorologiche sulla meningite cerebro-spinale. p. 34-35.

Simone, E. de. Motori a vento. p. 7-12.